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Honorable Commissioner of Patents and Trademarks
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Sir:

Transmitted herewith for filing is the Utility Patent Application of

Inventor: Lane

For the invention titled: **"SUPPORT STRUCTURE FOR DECORATIVE MOBILE"**

Attorney Docket Number: P0015

Enclosed are:

- 1) a filing fee check for \$345.00;
- 2) a certificate of mailing by express mail;
- 3) SIXTEEN (16) pages of specification;
- 4) Three (3) sheet of drawings, FIGS. 1-5;
- 5) a declaration and power of attorney;
- 6) a declaration claiming small entity status; and
- 7) a return postcard.

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Very respectfully,

Patrick N. Burkhart

Reg. No. 33,352

"Express Mail" mailing label number EX91144319905

Date of Deposit 27 September 2000

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Signature: 

Applicant: LAURIE S. LANE

Docket No. : P0015

For: SUPPORT STRUCTURE FOR DECORATIVE MOBILE

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
(37 C.F.R. 1.9(f) and 1.27(b) --- INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 C.F.R. 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in the specification filed herewith, with title as listed above.

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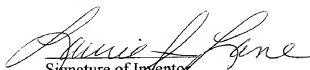
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

LAURIE S. LANE

Name of Inventor


Signature of Inventor

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5 Typed Name of Person Mailing Paper or Fee: Patrick Burkert
Signature: [Signature]

10 **PATENT APPLICATION**
DOCKET NO. P0015

SUPPORT STRUCTURE FOR DECORATIVE MOBILE

INVENTOR:

Laurie S. Lane

SUPPORT STRUCTURE FOR DECORATIVE MOBILE

FIELD OF THE INVENTION

The present invention relates generally to support structures for decorative mobiles. Specifically, the present invention relates to support structure for decorative mobiles that provides adjustability and simplicity of construction.

BACKGROUND OF THE INVENTION

Whether they involve sheep and angels entertaining infants from high above a crib, or Calder's kinetic sculpture entertaining millions as high art, mobiles are universally valued for their beauty and proportion. Mobiles typically include decorative elements suspended from interconnected linear, generally horizontal support members. The decorative elements are usually suspended from the support members by relatively thin structures such as rods, cables, string, or cord.

Support structure contributes significantly to the overall effect of mobiles. Aesthetically, the support structure must be proportional to the overall piece. The support structure provides visual balance to the decorative elements, and must be of suitable length and thickness so as to complement rather than overpower the decorative elements. Physically, the support structure must have sufficient strength to securely hold the decorative elements in position, and properly interconnected to balance the various decorative elements for relative movement.

Various support structures for mobiles have been proposed, and some of

a patio area, or the like. The mobile includes a plurality of segmented portions collectively forming a fish body structure, each of the segmented portions being joined in spaced-apart relationships to one another by a plurality of strings, a plurality of fin structures secured to portions of the fish body structure by means of strings and disposed in spaced-apart relationship thereto, and weights secured to the segmented portions to maintain the fish body structure in a vertical arrangement and to draw the strings taut to allow and encourage pivotal movement of the various string-jointed together portions of the mobile when such are moved by wind currents flowing thereabout.

U.S. Patent No. 4,567,682 Hurxthal discusses a mobile in which pairs of photographs or the like are suspended in mid-air from a horizontally disposed elongated support member or rod located above the pairs of photographs, by means of a suspension means interconnected with the upper disposed support member and a clamping means, clamping and holding the pair of photographs. Elongated support members can be joined together end-to-end, using a connecting sleeve.

While each of these examples of known mobile support structures has its advantages, known systems fail to provide a simple, inexpensive, yet effective support structure that is also aesthically pleasing.

SUMMARY OF THE INVENTION

These and other objects are achieved by providing a support assembly in a

decorative structure including at least two suspended elements. The support assembly includes a support tube having a hollow interior and opposed end portions. A pair of selectively removable adjustment clips, each of the clips being adapted to interlock with a respective end portion of the support tube, are also provided. A flexible, elongate support element is secured between each of the clips and the respective end portions of the support tube. The elongate support element has two ends, each of the ends being adapted for attachment to a suspended element of the decorative structure. Alternatively, the support element can be secured in slits in the end of the support tube.

The adjustment clips can be adapted to fit over the end portions of the support tube, which can be constructed as a hollow cylindrical tube. In an illustrated embodiment, the adjustment clips comprise annular cylindrical members having an inner diameter approximately equal to an outer diameter of the support tube. The elongate support element can be provided as a string, for example, monofilament. The support tube and/or the adjustment clips can be fabricated from a transparent material. The support tube can be provided with a substantially arcuate shape.

A method of securing suspended elements to a support assembly in a decorative structure including at least two suspended elements is also set forth. First, a support tube having a hollow interior and opposed end portions is provided, along with a pair of selectively removable adjustment clips. Each of the clips is adapted to interlock with a respective end portion of the support tube. A flexible, elongate support element is secured between each of the clips and the respective

end portions of the support tube The elongate support element has two ends, each of which is adapted for attachment to a suspended element of the decorative structure. The elongate support element is threaded through the support tube. Next, a suspended element is attached to each of the each of the ends of the elongate support element. The adjustment clips are then placed in interlocking relation with the respective end portions of the support tube.

The features of the invention believed to be patentable are set forth with particularity in the appended claims. The invention itself, however, both as to organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in conjunction with the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a schematic illustration of a decorative structure in accordance with the principles discussed herein.

FIGURE 2 is a detailed view of a portion of a support assembly.

FIGURE 3 is a schematic illustration of a partial support assembly.

FIGURE 4 is a schematic illustration of a support assembly in a completed state of assembly.

FIGURE 5 is a detailed view of a portion of a support assembly.

DETAILED DESCRIPTION OF THE INVENTION

A decorative structure, here shown as a mobile 10 in accordance with the principles of the present invention, is illustrated in FIG. 1. The mobile 10 includes a plurality of suspended elements 12A through 12E. The suspended elements hang downwardly from support assemblies 14A, 14B, and 14C.

As seen in the FIG. 2 detail of support assembly 14A, each of the support assemblies includes a support tube 16 having a hollow interior 18 and opposed end portions 20. The support tube 16 can be constructed from any suitably rigid and aesthetically appropriate material such as wood, metal, glass, or plastic. It has been found that a transparent plastic material, such as polycarbonate or LEXAN can be employed to good effect.

In the Fig 2 embodiment, securing elements in the form of a pair of selectively removable adjustment clips 22 are adapted to interlock with the end portions 20 of the support tube 16. The adjustment clips 22 can be provided as annular bands having internal diameters substantially equal to, or slightly larger than, the outer diameters of the support tubes 16 to which they are secured. The adjustment clips 22 can be fabricated from any suitable material, and should complement the material of the support tubes 16. It has been found that clear flexible materials, such as HDPE, work well with transparent support tubes.

Flexible, elongate support elements 24A, 24B, and 24C are secured between each of the clips 22 and the respective end portions 20 of the support tubes 16. The elongate support element 24 has two ends, each of the ends being adapted for attachment to a suspended element 12A-12E of the decorative structure 10. The

elongate support elements 24 can be provided as any suitable wire, rod, fiber, or string-like material. With transparent support structures, it has been found that transparent monofilament, such as nylon monofilament, is particularly suitable.

A method of securing suspended elements to a support assembly in a decorative structure is illustrated in FIGS. 3 and 4. The elongate support element 24B has been threaded through the support tube 16B. The decorative elements 12B and 12C have been secured to opposite ends of the elongate support element 24B, and then positioned by sliding the elongate support element 24B within the support tube 16B until the desired balance has been achieved. Next, the adjustment clips 22 are placed in interlocking relation with the support tube 16B by being slid over the ends of the support tube 16B, securing the elongate support element 24B between the inner diameters of the clips 22 and the outer diameters of the support tubes 16.

An alternative arrangement for securing elements is shown in FIG. 5, in which opposed end portions 20' of a support tube 16' is provided with a slit 26 at a bottom portion thereof. The elongate support element is then inserted into the slit 26 when the decorative elements are balanced.

The present invention affords a type and degree of adjustability unknown in the prior art. This is particularly important where the decorative elements of the mobile are subject to frequent change, such as photographs in transparent sleeves, permitting the use of decorative elements in a wide range of sizes and weights.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made

thereto without departing from the scope and spirit of the invention as defined by the appended claims. For example, the support tubes can be configured with a square or other polygonal cross-section. Similarly, the adjustment clips could be provided as plugs fitting into, rather than bands fitting over, the ends of the support tubes, or

5 that the elongate support elements can be held in place by surface friction between the elongate support elements and the interior surfaces of the support tubes.

CLAIMS

What is claimed is:

1. In a decorative structure including at least two suspended elements, a support assembly comprising the following:

5 a support tube having a hollow interior and opposed end portions;
a pair of securing elements, each of the securing elements being located on a respective end portion of the support tube; and

10 a flexible, elongate support element secured to the respective end portions of the support tube by the securing elements, the elongate support element having two ends, each of the ends being adapted for attachment to a suspended element of the decorative structure.

2. A support assembly according to claim 1, wherein the securing elements comprise adjustment clips adapted to fit over the end portions of the support tube.

15 3. A support assembly according to claim 2, wherein the support tube comprises a hollow cylindrical tube.

4. A support assembly according to claim 3, wherein the adjustment clips comprise annular cylindrical members having an inner diameter approximately equal to an outer diameter of the support tube.

5. A support assembly according to claim 1, wherein the elongate support element is selected from a group comprising string and monofilament.

6. A support assembly according to claim 1, wherein the securing elements comprise slits in the end portions of the support tube.

5 7. A support assembly according to claim 1, wherein the support tube is fabricated from a transparent material.

8. A support assembly according to claim 7, wherein the adjustment clips are fabricated from a transparent material.

9. A support assembly according to claim 1, wherein the support tube is substantially arcuate.

10

10. In a decorative mobile including at least two suspended elements, a support assembly comprising the following:

a main support tube having a hollow interior and opposed end portions;

a pair of main securing elements, each of the main securing elements being
5 located on a respective end portion of the main support tube;

a pair of secondary support tubes, each having a hollow interior and opposed end portions;

two pairs of secondary securing elements, each pair of the secondary
securing elements being located on respective end portions of the secondary
10 support tubes;

a main flexible, elongate support element secured to the respective end
portions of the main support tube by the main securing elements, the main elongate
support element having two ends, each of the ends being adapted for attachment to
one of the secondary support tubes; and

15 a pair of secondary flexible, elongate support elements, the respective
secondary elements being secured to the respective end portions of the secondary
support tubes by the secondary securing elements, each of the secondary elongate
support element having two ends, each of the ends being adapted for attachment to
a suspended element of the decorative structure.

11. A support assembly according to claim 10, wherein the main and secondary support elements comprise selectively removable adjustment clips adapted to fit over the end portions of the respective main and secondary support tubes.

5 12. A support assembly according to claim 11, wherein the main and secondary support tubes comprise hollow cylindrical tubes.

13. A support assembly according to claim 12, wherein the main and secondary adjustment clips comprise annular cylindrical members having an inner diameter approximately equal to outer diameters of the main and secondary support tubes.

10 14. A support assembly according to claim 10, wherein the main and secondary elongate support elements are selected from a group comprising string and monofilament.

15 15. A support assembly according to claim 10, wherein the main and secondary securing elements comprise slits in the end portions of the respective main and secondary support tubes.

16. A support assembly according to claim 10, wherein the main and

secondary support tubes are fabricated from a transparent material.

17. A support assembly according to claim 10, wherein the main and secondary support tubes are substantially arcuate.

18. In a decorative structure including at least two suspended elements, a method of securing suspended elements to a support assembly, the method comprising the following steps:

providing a support tube having a hollow interior and opposed end portions;

providing a pair of securing elements located on respective end portions of the support tube;

providing a flexible, elongate support element secured to the respective end portions of the support tube by the securing elements, the elongate support element having two ends, each of the ends being adapted for attachment to a suspended element of the decorative structure;

threading the elongate support element through the support tube;

attaching a suspended element to each of the each of the ends of the elongate support element; and

placing the support element in interlocking relation with the securing elements on the end portions of the support tube.

19. A method according to claim 18, wherein the step of placing the support element in interlocking relation comprises placing selectively removable adjustment clips over the end portions of the support tube.

20. A method according to claim 18, wherein the step of placing the
5 support element in interlocking relation comprises placing the support element into slits in the end portions of the support tube.

ABSTRACT

A support assembly in a decorative structure includes at least two suspended elements. The support assembly includes a support tube having a hollow interior and opposed end portions. In an embodiment, a pair of selectively removable adjustment are adapted to interlock with a respective end portion of the support tube. A flexible, elongate support element is secured between each of the clips and the respective end portions of the support tube. The elongate support element has two ends, each of the ends being adapted for attachment to a suspended element of the decorative structure. The adjustment clips can be adapted to fit over the end portions of the support tube, which can be constructed as a hollow cylindrical tube. In an illustrated embodiment, the adjustment clips comprise annular cylindrical members having an inner diameter approximately equal to an outer diameter of the support tube. In another embodiment, the elongate support element is secured in slits on the respective ends of the support tube. The elongate support element can be provided as a string, for example, monofilament. The support tube and/or the adjustment clips can be fabricated from a transparent material. The support tube can be provided with a substantially arcuate shape. A method of securing suspended elements to a support assembly in a decorative structure including at least two suspended elements is also set forth.

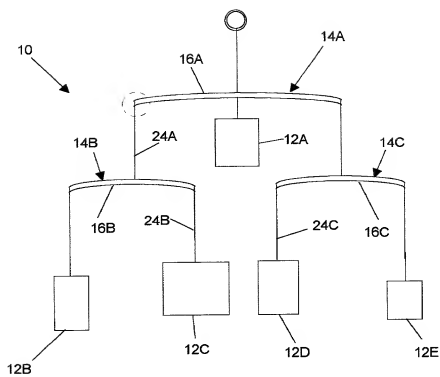


FIG. 1

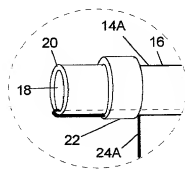


FIG. 2

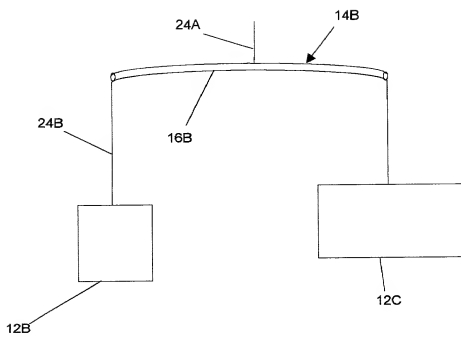


FIG. 3

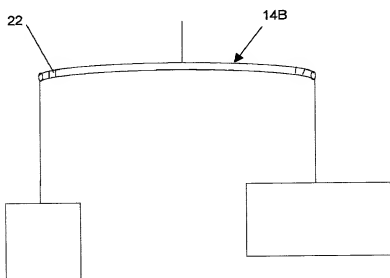


FIG. 4

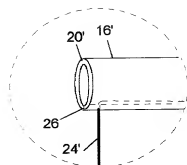


FIG. 5

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare as follows:

My residence, post office address, and citizenship are as stated below next to my name.

I believe that I am the original, first, and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

SUPPORT STRUCTURE FOR DECORATIVE MOBILE

Case No. P0015, the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a).

I do not know and do not believe that this invention was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application. I do not know and do not believe that this invention was in public use or on sale in the United States of America more than one year prior to this application. I believe that this invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application. I believe that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns.

I hereby appoint Anne K. Burkhardt (Registration No. 35,280) and Patrick N. Burkhardt (Registration No. 33, 352), of 940 DAKOTA AVE., WHITEFISH, MONTANA, 59937 telephone No. (406) 862-1187, as my Agents with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and direct that all correspondence be sent to:

Burkhardt & Burkhardt
Registered U.S. Patent Attorneys
940 Dakota Ave.
Whitefish, Montana 59937

I hereby declare that: All statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; These statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code; And, such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of inventor: LAURIE S. LANE

Inventor's signature: Laurie S. Lane

Date: 8/20/00

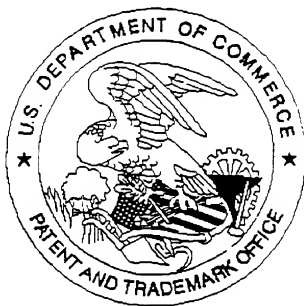
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